IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application. An identifier indicating the status of each claim is provided.

Listing of Claims

1. (Currently Amended)   A picture providing apparatus adapted to input distorted picture image in which a predetermined range is collectively imaged from image pick-up means to provide the entirety or a portion of the picture image in accordance with request of a picture image display unit, the apparatus including:

communication means for receiving request for transmission of picture image from the picture image display unit and for transmitting the entirety or a-the portion of the picture image from which distortion has been eliminated to the picture image display unit;

memory means for storing the picture image inputted from the image pick-up means;

selector means for selecting the entirety or a-the portion of the picture image stored in the memory means in correspondence with the request that the communication means has received; and

picture image conversion means for both eliminating distortion of the selected entirety or a-the portion of the picture image selected by the selector means and for converting it-the selected entirety or portion into high quality picture image with increased resolution, wherein the picture image conversion means eliminates distortion and converts to a high quality picture in a single stepstep,

wherein the high quality picture has a higher quality than the selected entirety or the portion of the picture image whose distortion has been eliminated, and

wherein the single step operates on only the distorted image to both eliminate distortion and convert into a higher quality image with increased resolution.

2. (Original)   The picture providing apparatus as set forth in claim 1, wherein the picture image conversion means eliminates distortion of the entirety or a portion of the picture image selected by the selector means by classification adaptive processing and converts such picture image into high quality picture image.

3. (Previously Presented)   The picture providing apparatus as set forth in claim 2, wherein the picture image conversion means reduces a number of bits of pixel value of pixels of a block or blocks for classification by ADRC processing.

4. (Currently Amended)   A picture providing method for a picture providing apparatus adapted to input distorted picture image in which a predetermined range is collectively imaged from an image pick-up unit to provide the entirety or a portion of the picture image in accordance with request of a picture display unit, the method including:

a communication step of receiving request for transmission of picture image from the picture image display unit and of transmitting the entirety or a the portion of the picture image from which distortion is eliminated;

a memory step of storing the picture image inputted from the image pick-up unit;

a selection step of selecting the entirety or a the portion of the picture image stored at the memory step in correspondence with the request received at the communication step; and

picture image conversion means for ~~both~~ eliminating distortion of the selected entirety or

~~a~~ the portion of the picture image ~~selected by the selector means~~ and for converting ~~it~~ the

selected entirety or portion into high quality picture image with increased resolution, ~~wherein the~~

~~picture image conversion means eliminates distortion and converts to a high quality picture~~ in a

single ~~step~~ step,

wherein the high quality picture has a higher quality than the entirety or the portion of the

picture image whose distortion has been eliminated, and

wherein the single step operates on only the distorted image to both eliminate distortion

and convert into a higher quality image with increased resolution.

5. (Currently Amended)   A ~~memory~~ computer-readable medium ~~adapted so~~

~~that there is provided~~ having recorded thereon a program that, when executed on a computer,

causes the computer to perform the method comprising ~~can read, processing executed by the~~

~~computer including~~:

a communication step of inputting distorted picture image in which a predetermined

range is collectively imaged from an image pick-up unit to receive request for transmission of

picture image from a picture image display unit to a picture providing unit for providing ~~the~~ an

entirety or a portion of the picture image in accordance with request of the picture image display

unit, and of transmitting the entirety or ~~a~~ the portion of the picture image from which distortion is

removed to the picture image display unit;

a memory step of storing the picture image inputted from the image pick-up unit;

picture image conversion means for both eliminating distortion of the selected entirety or

~~a~~ the portion of the picture image ~~selected by the selector means~~ and for converting ~~it~~ the

selected entirety or portion into high quality picture image with increased resolution, ~~wherein the picture image conversion means eliminates distortion and converts to a high quality picture~~ in a single ~~step~~step,

wherein the high quality picture has a higher quality than the entirety or the portion of the picture image whose distortion has been eliminated, and

wherein the single step operates on only the distorted image to both eliminate distortion and convert into a higher quality image with increased resolution.

6. (Currently Amended)   A picture processing apparatus comprising:

extraction means for extracting a feature quantity every predetermined unit of picture data having distortion;

classification means for carrying out classification on every predetermined unit of the picture data in accordance with the feature quantity extracted by the extraction means; and

picture image conversion means for both correcting the distortion of the picture data in accordance with result of the classification and for converting the picture data into high quality picture image with increased resolution in a single step,

~~wherein the picture image conversion means eliminates distortion and converts to a high quality picture in a single step.~~

wherein the high quality picture has a higher quality than the entirety or the portion of the picture image whose distortion has been eliminated, and

wherein the single step operates on only the distorted image to both eliminate distortion and convert into a higher quality image with increased resolution.

7. (Original)   The picture processing apparatus as set forth in claim 6, which

further comprises image pick-up means for imaging the picture data having distortion.

8. (Previously Presented)   The picture processing apparatus as set forth in

claim 6, wherein the picture image conversion means eliminates distortion of the picture image

having distortion by classification adaptive processing and converts it into high quality picture

image.

9. (Original)   The picture processing apparatus as set forth in claim 6, wherein

the classification means reduces the number of bits of pixel value of pixels of block for

classification by the ADRC processing.

10. (Currently Amended)   A picture processing method including:

an extraction step of extracting feature quantity every predetermined unit of picture data

having distortion;

a classification step of carrying out classification every predetermined unit of the picture

data in accordance with feature quantity extracted by the extraction step; and

a picture image conversion step of both correcting the distortion of the picture data in

accordance with result of the classification and for converting the picture data into high quality

picture image with increased resolution in a single step,

~~wherein the picture image conversion means eliminates distortion and converts to a high~~

~~quality picture in a single step.~~

wherein the high quality picture has a higher quality than the entirety or the portion of the picture image whose distortion has been eliminated, and

wherein the single step operates on only the distorted image to both eliminate distortion and convert into a higher quality image with increased resolution.

11. (Currently Amended)   A ~~memory~~ computer-readable medium ~~adapted so that there is provided~~ having recorded thereon a program that, when executed on a computer, causes the computer to perform the method comprising ~~can read, processing executed by the computer including~~:

an extraction step of extracting feature quantity every predetermined unit of picture data having distortion;

a classification step of carrying out classification every predetermined unit of the picture data in accordance with the feature quantity extracted by the extraction step; and

a picture image conversion step of both correcting the distortion of the picture data in accordance with result of the classification and for converting the picture data into high quality picture image with increased resolution in a single step,

~~wherein the picture image conversion means eliminates distortion and converts to a high quality picture in a single step.~~

wherein the high quality picture has a higher quality than the entirety or the portion of the picture image whose distortion has been eliminated, and

wherein the single step operates on only the distorted image to both eliminate distortion and convert into a higher quality image with increased resolution.

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12. (Currently Amended) A picture providing system comprising an image pick-up unit, a picture providing unit, and a picture display unit,

wherein the image pick-up unit includes image pick-up means for collectively imaging picture image of a predetermined range,

wherein the picture providing unit includes:

first communication means for receiving request for transmission of picture image from the picture display unit and for transmitting, to the picture display unit, the entirety or a portion of the picture image from which distortion has been eliminated so that there is provided high quality picture image;

memory means for storing the picture image inputted from the image pick-up unit;

selector means for selecting the entirety or a portion of the picture image that the memory means stores in correspondence with the request that the first communication means has received; and

picture image conversion means for both correcting the distortion of the picture data in accordance with result of the classification and for converting the picture data into high quality picture image with increased resolution in a single step,

~~wherein the picture image conversion means eliminates distortion and converts to a high quality picture in a single step.~~

wherein the high quality picture has a higher quality than the entirety or the portion of the picture image whose distortion has been eliminated, and

wherein the single step operates on only the distorted image to both eliminate distortion and convert into a higher quality image with increased resolution, and

wherein the picture display unit includes

second communication means for transmitting request for transmission of the picture image to the picture providing unit and for receiving, from the picture providing unit, the entirety or a portion of the picture image from which distortion is eliminated so that there is provided high quality picture image.

13. (Currently Amended) A picture providing system comprising an image pick-up unit, a picture providing unit and a picture processing unit,

wherein the image pick-up unit includes

image pick-up means for collectively imaging picture image of a predetermined range,

wherein the picture providing unit includes:

first communication means for receiving request for transmission of picture image from the picture processing unit and for transmitting the entirety or a portion of the picture image to the picture processing unit;

memory means for storing the picture image inputted from the image pick-up unit; and

selector means for selecting the entirety or a portion of the picture image that the memory means stores in correspondence with the request that the first communication means has received, and

wherein the picture processing unit includes:

second communication means for transmitting request for transmission of the picture image to the picture providing unit and for receiving the entirety or a portion of the picture image from the providing unit; and

picture image conversion means for carrying out <u>both</u> conversion into the high quality picture image <u>and converting the picture image into high quality picture image with increased resolution in a single step,</u>

~~wherein the picture image conversion means eliminates distortion and converts to a high quality picture in a single step.~~

<u>wherein the high quality picture has a higher quality than the entirety or the portion of the picture image whose distortion has been eliminated, and</u>

<u>wherein the single step operates on only the distorted image to both eliminate distortion and convert into a higher quality image with increased resolution.</u>

14. (Previously Presented)   The picture providing apparatus as set forth in claim 1, wherein the high quality picture image has a resolution higher than that before the converting.